



Sustainable Geothermal Power Generation and Heating of Greenhouses and Spas in Kenya's Rift Valley



Sustainable Development Goals Addressed



Organization, Institution or Company
Kenya Electricity Generating Company PLC (KenGen) and Geothermal Development Company (GDC)
Location of project site, Country
Kenya Rift Valley
Brief narrative description of objective/project/activity/initiative
<p>Geothermal energy is the natural heat stored within the earth’s crust. Wells are drilled to tap steam and water at high temperatures (250-350°C) and pressures (600-1200 PSI) at depths of up to 3 km. For electricity generation, steam is piped to turbines which rotate a generator to produce electrical energy. Geothermal heat may also be used for direct heating of residential buildings, or industrial, agricultural, or recreational facilities.</p> <p>Sustainable geothermal power generation needs water in the form of sufficient rainfall and natural replenishment of groundwater near the heat source and/or a systemic recycling and re-injection of used geothermal water after its heat has been extracted. The careful and complete reinjection of geothermal brines can also help prevent potential thermal and/or environmental pollution in the vicinity of geothermal plants. Geothermal brines can carry contaminants that must not be allowed to pollute surface water, soil or air in the vicinity.</p> <p>Kenya is well endowed with high temperature geothermal resources most of which are located within the axial of the Kenya Rift valley. Kenya Electricity Generating Company PLC (KenGen) is one of the leading electric power generating companies in East Africa.</p> <p>KenGen operates several large and small geothermal power stations along the Rift Valley with a combined generation capacity of some 700 MW. At present, geothermal resources account for nearly 40 per cent of Kenya’s power generating capacity.</p>
Economic, environmental and climate benefits, challenges, and lessons learned
<p>KenGen’s larger geothermal facilities are located close to national parks and natural lakes which ensure natural replenishment of ground water. KenGen’s Environmental, Safety & Liaison Section carries out comprehensive pre-investment environmental impact assessments, environmental audits, and monitoring of environmental impacts arising from geothermal development. The Section is responsible for ensuring environmental protection and liaison with the local communities on all aspects of social concerns.</p> <p>Kenya’s development plan ‘Vision 2030’ lays out a policy roadmap to double Kenya’s geothermal electricity generation every few years. Managing surface water consumption, maintaining</p>

sufficient groundwater reservoirs, and avoiding all potential forms of local pollution will be essential for the country to move forward and make progress towards the fulfilment of the SDGs.

In many rural parts of Kenya provision of safe drinking water remains a great challenge. In order to promote socio-economic development throughout the country KenGen established its own KenGen Foundation which among other social projects supports the drilling and upgrading of water wells. Provision of clean accessible water for communities neighbouring its power plants has been one of KenGen's key Corporate Social Investment programs since 2005. KenGen Foundation works with various partners in its social projects, including the Lake Victoria South Water Service Board and Tanathi Water Services Board.

Additional information: website addresses and contacts

Kenya Power Generation Company (KenGen): <https://www.kengen.co.ke/>

Geothermal Development Company, Kenya: <https://www.gdc.co.ke/>



Photos from KenGen therapeutic spa and KenGen Foundation rural water supply projects